

(a plural one), of which fifteen altogether are represented in this member of the Bantu family. But "unfortunately I cannot ask any of my friends, 'What is your eighth prefix?' I should never be understood if I explained for a hundred years. I have to get at it in some other way. 'What is this?' I ask, holding up a knife. 'Ki-oshó,' they reply. 'Just so,' I replied; 'ki' is the seventh prefix, and the plural must give the form of the eighth. 'How do you say many knives,' I continue; 'ki-oshó is *one*; what is many?' 'Shingi' (many), they reply. 'No, but many knives?' 'Shingi' is again repeated. Then I ask, 'See, this is one knife—*ki-oshó kimo* (holding up one finger). What is for *two* knives?' (holding up two fingers). 'Two fingers,' they reply, looking up very much puzzled. Then in despair I send for another knife, and placing it

beside the original one, again ply them with a question. This only elicits the word for 'another'; but at length after many disappointments they are induced to say *shi-oshó shivi* (*two knives*), which gives me *shi-oshó* as the plural of *ki-oshó*, and consequently *shi* is the form of the eighth prefix, and so on" (p. 162). Of course all travellers amongst the lower races are familiar with difficulties of this sort. But it is not every traveller who during the off hours of a six months' expedition contrives to collect sufficient linguistic materials to reconstitute the philology of a continent.

Mr. Johnston, who is also an accomplished artist, has added much to the value of his work by the numerous illustrations with which he has enriched this handsome volume. His skill especially in portraying animal and



FIG. 4.—*Colobus guereza*, var. *caudatus*.

vegetable forms is sufficiently attested by the specimens here adduced. He also supplies a copious index, as well as carefully prepared route and linguistic charts, besides a large map brought well up to date of Eastern Equatorial Africa between the parallels of 1° N. and 6° S. It remains to be stated that in this notice the somewhat unfamiliar orthographic system of Lepsius, adopted by the author, has been replaced by the usual and sufficiently accurate method adhered to by Stanley, Thomson, and most other English travellers in Central Africa. To the writer it seems that the plan of combining the English consonantal with the Italian vocalic system adapts itself fairly well to the transliteration of most African (Negro) and especially of the Bantu languages.

A. H. KEANE

NOTES

LORD ROSEBERY has endowed a new lectureship in the University of Edinburgh. The course, which will extend over five years, will consist of thirty lectures on the Philosophy of Natural History. The lectureship has been offered to, and accepted by, Mr. G. J. Romanes, M.A., LL.D., F.R.S. This is the second lectureship which has recently been founded in connection with the Chair of Natural History. The other one is on Comparative Embryology, and is occupied by Mr. G. Brook, F.L.S.

AN important discovery has been made by Dr. O. Tumlirz, of Prague. Hitherto no substance amongst those which exhibit diamagnetic properties has been observed to possess any per-

manent diamagnetic polarity analogous to the permanent paramagnetic polarity of hard steel. The property of retention of diamagnetisation is, however, found to be possessed by rock crystal. Both those specimens which show right-handed and left-handed optical properties are alike in this respect, and the axis of diamagnetisation appears to be independent of the crystallographic axis, and dependent only on the axis of initial magnetisation. Dr. Tumlriz, whose investigation is published in *Wiedemann's Annalen*, appears to think that these facts negative Becquerel's theory of diamagnetism.

WE regret to announce the death of Dr. Oskar Schmidt, the eminent Professor of Zoology at Strasburg University; he died on the 17th ult. Also of Dr. Nikolaus Friedrich von Tschudi, the well-known author of the "Thierleben der Alpenwelt." He died at Melonenhof, near St. Gallen, aged sixty-five years.

M. FAYE has been appointed President of the Bureau des Longitudes for 1886.

DR. W. H. STONE will deliver the Lumleian Lectures this year on April 8, 13, and 15, the subject being "The Electrical Conditions of the Human Body."

Two young persons, natives of the central part of Paraguay, are being exhibited at the Westminster Aquarium possessing an abnormal development of hair on the body, a condition to which the term hypertrichosis is applied. One of these is a girl of about eighteen years of age; the other, her brother, aged six years. In the former the whole of the back is covered with hair about one centimetre in length, which extends in the region of the waist to the anterior surface of the body. In addition to this continuous tract of hair there are numerous small patches of varying size distributed irregularly over the face, trunk, and extremities. In the boy the hair tract on the back begins immediately below the level of the lower angles of the scapulæ and extends downwards on the body and extremities almost to the bend of the knees. There are likewise on the body several patches covered with hair, the largest of which is about the size of the palm of the hand, and situated on the front of the thigh; the other patches vary in size from about one to two centimetres in diameter. Contrary to what might have been expected, there is no development of hair in the mesial line of the body in front, or on the cheeks, chin, or upper lip, as is sometimes seen in such cases. In both cases the skin is deeply pigmented, of a dark brown hue wherever the abnormal hair is developed, and on the back of the girl and outer side of the thigh of the boy there is a large and partially filled cyst present immediately below the skin. The cyst on the boy's thigh seems to be entirely unconnected with the bursa over the trochanter of the femur with which it might be imagined it had some connection. In the family history there is nothing to account for the occurrence of the abnormal condition presented by these two members of the family. The parents are in all respects reported to be normal, as are the other members of their family, which consists of four children in all. In no other respect do the two abnormal members of the family present any peculiarity, such, for example, as in the growth of the teeth, which is not infrequently found to accompany extra development of hair. Cases of this kind occasionally occur in different parts of the world. The hairy family from Burmah has been the subject of several notices some years ago, and more recently a child from the same country was exhibited at the Aquarium. Several other cases have been recorded, however, occurring in Russia and different parts of America, and other places. The hair sometimes occurs universally spread over the body, when the term *hypertrichosis universalis* is applied to it, or in patches more or less extensive, *hypertrichosis partialis*, as in the present instances.

ONE of the most appreciated organs of French anthropology, the *Revue d'Anthropologie* of Paris, founded in 1872 by Paul Broca, and continued since the death of that distinguished *savant* by Dr. Paul Topinard, inaugurates the third series this year with the co-operation of the most distinguished representatives of the various branches of anthropological science. Amongst these we notice the names of Dr. Gevarret, Director of the École d'Anthropologie; Dr. Mathias Duval, Director of the Laboratoire d'Anthropologie de l'École des Hautes Études; the Marquis de Nadaillac, whose works on prehistoric archæology have been translated into several languages; Gen. Faidherbe, Great Chancellor of the Légion d'Honneur, and well-known for his philological works; Prof. de Quatrefages; Dr. Hamy and Louis Rousselet, who highly represent ethnography; Baron Larrey; Jules Rochard, of the Medical Service of the French Navy; D'Arbois de Jubainville, of the Institute; and several others. The editorship of the *Revue* will be retained by Dr. Paul Topinard, the General Secretary of the Anthropological Society of Paris, and author of the "Éléments d'Anthropologie," a work to which we recently called the attention of our readers, and for which we are glad to learn the author has been awarded one of the annual prizes of the Académie des Sciences.

THE first Report upon the Fauna of Liverpool Bay and the Neighbouring Seas, written by the members of the Liverpool Marine Biology Committee, and edited by Prof. W. A. Herdman, D.Sc., will be published during the present month, in the form of an octavo volume of about 300 pages, illustrated by six plates and a map.

AN exploring expedition was to start from Tiflis on the 2nd inst., with the object of thoroughly investigating the natural history of Khorassan. It will be under the direction of Dr. Radde, who will take charge of the botanical department and of the zoology of the higher animals. Dr. Walter, who was lately assistant to Prof. Haeckel at Jena, will have charge of the lower animals. M. Kontjin will be the geologist, and two general assistants will complete the scientific portion of the expedition. It is hoped that their work will be finished by the end of August. A number of specialists will be charged with the task of examining and describing the collections with a view to publication; and it has been already arranged that Dr. Boettger, of Frankfort, will deal with the mollusca, M. Strauch, of St. Petersburg, with the reptiles and amphibia, and Dr. Radde with the birds. It is understood that the Emperor has expressed a strong personal interest in the expedition.

THE Parisian authorities systematically liquefy the snow with salt, except on macadamised streets (where the process causes disaggregation of the stones). This practice has obtained since 1881. Rock-salt is used, costing in Paris about 31 francs a ton. Large quantities are stored in the beginning of winter at different places, and when a snowfall occurs a number of workmen repair to these, and each fills a barrow, and takes it to sprinkle on that part of the streets assigned to him. The salt produces its full effect only when the passage of vehicles has mixed it sufficiently with the snow. In two or three hours liquefaction is so far advanced as to allow of the streets being swept. The salt is little used on pavements. Paris spent about 220,000 francs on the fall of snow of December 8 to 10 last; the thickness of the layer varied from 2½ to 4 inches. The quantity of salt used was about 125 grammes on an average per square metre; the cost of it was only about an eighth of the total expense (sweeping cost 3 to 4 centimes per square metre). The employment of salt in the way indicated is found to effect a considerable economy on previous methods.

SOME experiments on a large butcher's dog, with reference to the effects of sundry beverages on digestion, have been recently

described by Signor Ogata (*Archiv für Hygiene*). The observations were made by means of a stomachal fistula (quite healed); the dog was fed on horse-flesh and fibrin from ox blood. The following conclusions (which may not be strictly applicable to man, accustomed to the drinks named) were reached:—(1) Water, water containing carbonic acid, tea and coffee in moderate amount, do not disturb digestion. (2) Beer, wine, and brandy retard digestion considerably at first, till absorbed; and in the case of beer, the extractive matters act thus as well as the alcohol. Thus beer retards digestion more than wine containing the same quantity of alcohol. (3) Sugar (cane and grape) retards digestion considerably. (4) Common salt accelerates it distinctly.

WE have received the report of the administration of the Museum of Science and Art at Dresden for the years 1882 and 1883, which has only just been issued. It contains nothing calling for especial note. The various scientific collections in the anthropological, zoological, prehistoric, and geological departments were largely increased during the two years by purchase, and specially by donations from private individuals, mainly travellers, or Germans residing abroad.

ON the afternoon of the 29th ult. a strong shock of earthquake was felt at Velez Malaga, which suffered so severely in the earthquakes of December 1884. The town is reported to have suffered little damage, although no precise details have yet been received.

ON January 29 earthquakes were again noticed at M'sila, Bordj ben Arendj, and Setif, Algeria, the site of previous commotions, but no accidents are reported, although the shocks are said to have been strong.

DR. F. J. HICKS writes from Madeira, on January 28, that in the previous week a sharp little shock of earthquake occurred on the island.

A TELEGRAM from Mexico states that the Colima volcano continues in active eruption.

THE last, or December, number of the *Journal* of the Royal Microscopical Society has a new feature, in the form of portraits of a number of past presidents of the Society; Sir Richard Owen, the first president of the Microscopic (1840-41), and Mr. James Glaisher, the first president of the Royal Microscopical Society (1865-66, 1867-68), have full-page illustrations; the two other plates contain eight vignettes each; on one (1842-57) we have, among others, Dr. Fane, Mr. Busk, and the lately deceased Dr. Carpenter, and on the other Mr. J. B. Reade, Mr. Quekett, and Mr. Sorby. Many, if not indeed all, of the photographs are excellent likenesses. We understand that it is the intention of the Society to publish other similar photographs from time to time.

THE so-called wines sent to the Parisian market of late years have been to a large extent, it is well known, vile concoctions, not deserving the name of wine, and a movement is now on foot for replacing such false wine by true cider. The year 1885 has been exceptionally favourable for such an experiment; the crop of apples was so abundant in Normandy and Brittany that growers were obliged to dispose of their products at low prices. Enormous quantities have been sent to Paris to be transformed into cider. It is to be hoped that this new development may check the great falsification of wine.

ON January 21 the exhibition of ethnological and natural history objects collected by Dr. Otto Finch, in his travels undertaken at the request of the New Guinea Society, was opened at the Berlin Ethnographical Museum. Dr. Finch himself gave the necessary explanations to the assembly. The objects were

all collected in parts never before visited by Europeans. The collection contains numerous face-casts of the various New Guinea tribes and those of the adjacent island, as well as a large number of water-colour drawings of scenes in the new German colonies.

"H. I. M." writes to the *Times* under date Bratton Fleming, Barnstaple, January 28:—"As I was driving near Barnstaple yesterday evening with a friend, we noticed a most remarkable meteor. While we were ascending a hillside, we suddenly became aware of a brilliant light to our side and rather behind us, from over the hill-top. I thought for the moment that it was a flash of lightning, but on looking up we caught a glimpse of the most beautiful meteor I had ever seen. It seemed to be quite close, and described a path like that taken by a stone in falling when flung horizontally from a tower. It appeared (at its distance) to have a diameter of about 6 inches, and was accompanied by a tail of a smoky consistency, rather of the shape of an elongated open fan with the ends rounded, which followed it, altering its position from a horizontal to a vertical one as the body fell. This tail was, I should say, one and a half times as long as the meteor's diameter, and was of a much paler hue and less dense consistency than the meteor, which was of a most glorious yet rather pale emerald green, with a yellow flame, as it seemed, playing all over it; the tail was of the same tint, only in a less intense degree. It may be of interest to any who may have seen it, that the time we saw it was 27 minutes past 7 o'clock."

ELABORATE preparations are being made at the fishery of the National Fish-Culture Association at Delaford Park for receiving the fry which are now rapidly becoming incubated at the hatchery in South Kensington, special habitats being constructed for them. The whitefish ova that arrived from America last week commenced to hatch out immediately they were placed in the apparatus; indeed, many came to life during the voyage. Unlike other fry, they never rest, but move rapidly hither and thither, their powers of locomotion being marvellous considering their present alevin stage. Further consignments of eggs are on their way from the American Government, who are doing their utmost to aid fish-culture in this country. The fish reared at the Delaford Fishery last year will shortly be ready for distribution. The stock is extensive and valuable, including *S. sebago*, *S. fontinalis*, *S. ferox*, *S. fario*, *S. trutta*, and *S. iridens*.

A CLOSER investigation of the fish-fauna of Lake Balkhash permits M. Nikolsky to arrive at the following interesting conclusions (*Memoirs* of St. Petersburg Soc. of Natur., xvi. 1). The fauna numbers fourteen species, partly described by the late Prof. Kessler (*Perca schrenckii*, *Phoxinus levis*, var. *balchaschana*, *P. poljakowi*, *Barbus platyrostris*, *Schizothorax argentatus* and *orientalis*, *Diptychus dybowskii*, *Diplophysa strauchii*, *labiata*, and *kungessana*), and three more *Schizothorax*, of which one new one has been described by M. Nikolsky as *S. kolpakowskii*. Of these fourteen species, only one is not new, and none of them has been found either in the Aral-Caspian basin or in the system of the Obi; on the contrary, the fish-fauna of Lake Balkhash is closely akin to that of the lakes of high Central Asia. In both, the Cyprinidae and Cobitidae are predominating; four genera of the former are found exclusively in Lake Balkhash and the Central Asian lakes, as also the species of *Diplophysa*. More than that, the *Schizothorax tarimi*, the *S. aksensis*, and the *Diplophysa strauchii*, which were found by M. Nikolsky in the Ili River, are common to both the Balkhash and the Lob-nor. Only three species distinguish the Balkhash fauna from that of the Central Asian lakes, and make it approach that of the Obi: the *Perca schrenckii*, which, however, differs more from the European and Siberian species than this last differs from the American *P. slavescens* (which, in fact,

might be considered as a mere variety), and the *Phoxinus poljakovi*, which is nearly akin to the *Ph. levis* of the Obi and North-East Europe. From these facts M. Nikolsky concludes that if a direct communication between Lake Balkash and Lake Aral has ever existed—that is, if a marine basin ever covered once the three depressions of the Alatau, the Aral-Caspian, and Siberian—the former was separated from the two latter at a much earlier period than the time when, at least, a fluvial connection between the Aral-Caspian and the Siberian Ocean had ceased to exist. The separation must have taken place earlier than the separation of the two continents of Asia and America. If a connection existed between the Balkhash and the Irish during the Post-Tertiary period, it could be only by means of shallow streams where the *Phoxini* could live. On the contrary, the Balkhash and the Lob-nor remained connected after the above separation took place. The connection was carried on through Kunges, the Yulduz, and Tarim. The limits of this basin can be easily determined.

MESSRS. SWAN SONNENSCHN AND CO. will publish in a few days a "Tourist's Guide to the Flora of the Alps," translated from the German of Prof. Dalla-Torre, and issued under the auspices of the German and Austrian Alpine Club of Vienna. The volume will appear in the form of a handy pocket-book.

THE additions to the Zoological Society's Gardens during the past week include a Chacma Baboon (*Cynocephalus porcellineus* ♂) from South Africa, a Malbrouck Monkey (*Cercopithecus cynosurus* ♀) from West Africa, presented by Lieut.-Gen. G. W. A. Higginson, C.B.; a Rhesus Monkey (*Macacus rhesus* ♀) from India, presented by Mrs. J. J. Buchanan; a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. H. M. Sharratt; a Common Badger (*Meles taxus* ♂), British, presented by the Hon. Walter de Rothschild; four Moorhens (*Gallinula chloropus*), British, presented by Mr. T. E. Gunn; three Gold Pheasants (*Thaumalea picta* ♂ & ♂) from China, presented by Mr. A. Heywood, F.Z.S.; a Hygien Snake (*Elaps hygiea*), a Hoary Snake (*Coronella cana*), a Crossed Snake (*Psammophis crucifer*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; two Great Cyclodus (*Cyclodus gigas*), two Stump-tailed Lizards (*Trachydosaurus rugosus*) a Diamond Snake (*Morrelia spilotes*) from Australia, received in exchange.

OUR ASTRONOMICAL COLUMN

PHOTOGRAPHIC EVIDENCE AS TO THE CONSTITUTION OF SUNSPOTS.—M. Janssen, remarking on some exquisite photographs of sunspots which he has obtained during the past year, calls attention to the evidence they supply as to the continuation of the granulation of the general solar surface into the spots. A photograph of the great spot of 1885, June 22, for example, to which he particularly alludes, shows that the bright region which surrounds the penumbra of large spots has not a different constitution from that of the photosphere in general, since it is made up in like manner of granular elements, usually of a spherical form. The marked increase in brightness of such regions the photographs show to be due to the granulations being more thickly clustered, brighter in themselves, and arranged on a brighter background. In the penumbra the granulations are still distinguishable, but they are less luminous and more scattered, leaving dark gaps between the rows of grains, the familiar striated appearance of the penumbra being due to the arrangement of the granulations in ranks and lines, like beads on a thread. The grains become in general smaller and duller near the nucleus, where they seem to dissolve. The same spot presented two very remarkable bridges, and a very bright isolated mass of luminous matter which united them. This luminous matter and the bridges were also formed of granular elements resembling the others. Many other photographs have revealed a similar structure in penumbrae and their surroundings, so that it is highly probable that "the luminous matter which forms the solar surface has everywhere the same constitution."

THE STRUCTURE OF THE SOLAR ENVELOPE.—A somewhat lengthy paper by M. Trouvelot, on the above subject, originally published in the *Bulletin Astronomique* for June, August, and September last, has recently appeared. The first part of the paper consists of a *résumé* of a number of striking and typical observations which are illustrated in the plate which accompanies it. These observations principally relate to spots of irregular and complicated form; the most remarkable being those in which M. Trouvelot describes the formation of numbers of bright white points over sunspots, like "a fall of snow," sometimes even obliterating them, the formation of purple vapours in connection with both spots and prominences, and the apparent changes and sometimes complete concealment of spots occasionally produced by faculae. The essentially granular appearance of the sun, so well brought out in M. Janssen's photographs, has by no means escaped M. Trouvelot's notice, and he has even seen the lines C D, D₂ b₁ b₂ and F as themselves granulated, *i.e.* not uniformly dark, but composed of a great number of whitish points separated by dark intervals. The latter part of the paper is occupied with inferences as to the constitution of the solar envelope resulting from a consideration of these observations. The theory formed resembles in its essential characteristics that so admirably set forth by Prof. Young in his book on the sun. The sun is surrounded by a shell relatively very shallow, made up of innumerable vertical filaments due to the condensation of metallic vapours, and which M. Trouvelot proposes to call the *nematosphere*, in distinction to the photosphere, the glowing summits of these filaments. The behaviour of these filaments under various circumstances is discussed, and the varying effects upon them of hydrogen and metallic eruptions from the solar nucleus below of different degrees of violence is made to account for the varied phenomena of spots, faculae, and prominences. The brilliance of the photosphere is regarded as due to the high radiating powers of these metallic vapours, when on arriving at the surface of the sun they are condensed, partly from the effect of exposure to the cold of space, and partly from expansion, the granulations being glowing clouds composed of these condensed metallic vapours, the summits of these filaments or columns.

M. Trouvelot expressly contradicts the frequently-made assertion that the bright D₃ line of the chromosphere has no counterpart amongst the dark lines of the spectrum of the disk; the line is indeed an exceedingly fine one, but it is unmistakably present.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 FEBRUARY 7-13

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on February 7

Sun rises, 7h. 30m.; souths, 12h. 14m. 22' 8s.; sets, 16h. 58m.; decl. on meridian, 15° 14' S.; Sidereal Time at Sunset, 2h. 9m.

Moon (at First Quarter on Feb. 12) rises, 8h. 47m.; souths, 14h. 39m.; sets, 20h. 41m.; decl. on meridian, 2° 12' S.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian ° ' "
Mercury ...	7 14 ...	11 26 ...	15 38 ...	20 30 S.
Venus ...	7 20 ...	13 11 ...	19 2 ...	2 42 S.
Mars ...	20 4* ...	2 37 ...	9 10 ...	5 51 N.
Jupiter ...	21 14* ...	3 14 ...	9 14 ...	0 50 S.
Saturn ...	12 46 ...	20 57 ...	5 8* ...	22 41 N.

The planet Venus is now very near to inferior conjunction.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon

Feb.	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
			h. m.	h. m.	° ' "
10 ...	B.A.C. 741	... 6½ ...	18 6 ...	19 12	157 286°
12 ...	48 Tauri	... 6 ...	20 40 ...	21 40	93 347
12 ...	γ Tauri	... 4 ...	22 45 ...	23 47	128 323
13 ...	71 Tauri	... 6 ...	1 43 ...	2 25	95 345